

Survivorship and Complications of the Distal Femoral Osteotomy

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Objectives: Distal femoral osteotomy (DFO) is a useful procedure in the young patient with symptomatic unicompartamental osteoarthritis and valgus malalignment to avoid or postpone knee arthroplasty. Distal femoral osteotomy can be technically demanding and various complications are reported in the literature. Our retrospective study aims to evaluate the outcomes and analyze survivorship of the distal femoral osteotomy until eventual conversion to knee arthroplasty.

Methods: We performed a retrospective review of 78 open-wedge distal femoral osteotomies done on 74 patients at our institution between 2001 and 2011. The average patient age at surgery is 33 ± 11 years with mean BMI of 28 ± 6 . All surgeries were performed by two of the senior authors and 60.3% were done in conjunction with cartilage repair procedures such as autologous chondrocyte implantation and osteochondral graft transfer. Other associated procedures included lateral release, tibial tubercle osteotomy, quadricepsplasty and ACL reconstruction. The average follow-up duration was 43 ± 31 months and the need for further procedures (such as arthroscopic adhesiolysis, hardware removal, revision osteotomy and eventual progression to arthroplasty) was identified with relation to complications. Statistical analyses for survivorship were performed using MedCalc for Windows, version 12.5 (MedCalc Software, Ostend, Belgium).

Results: Of the 71 patients who followed -up beyond six months post-operatively, seven eventually converted to total knee arthroplasty (9.9%). The most common complication was hardware pain (20.5%) followed by arthrofibrosis (12.8%). All cases of arthrofibrosis were noted to have had intra-articular surgical manipulation for associated procedures such as cartilage repair. Other less common complications included hardware failure (3.8%), septic arthritis (3.8%) and nonunion (2.6%). Osteotomy hardware removal was performed in fourteen cases (17.9%). Kaplan - Meier survivorship analysis estimates mean survival time of 123 ± 8 months (with 95% confidence interval of 107 - 138) and survival probability at 10 years follow-up is estimated at 78%.

Conclusion: Distal femoral osteotomy is an acceptable surgical option for the young patient with severe unicompartamental knee osteoarthritis and malalignment. Its combination with various cartilage repair procedures has been shown to further improve outcomes. Careful selection of each surgical candidate is necessary to ensure maximum benefit. The unloading osteotomy is especially useful in the young, active patient as an adjunct procedure for cartilage repair. However, osteoarthritis continues to progress and multiple arthroscopic or open procedures may be required despite a successful osteotomy. When performed at the optimal time in a carefully selected patient, distal femoral osteotomy can provide adequate joint function for many years until arthroplasty becomes inevitable.

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